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ABSTRACT

Gender differences in faculty productivity, satisfaction, and salary were studied using 2 large datasets, the 1999 Higher Education Research Institute Faculty Survey (n=55,081) and the 1993 National Study of Postsecondary Faculty (n=25,780). Findings show very little evidence of gender differences in productivity, especially at the lower productivity levels. Although the gender gap remains at the higher productivity levels, among faculty at universities women are more likely than men to have published between one and 4 articles over the past 2 years. Overall job satisfaction for male and female faculty members was virtually identical, but differences in stress and rank are apparent. The area that shows the greatest difference between men and women is salary. Men and women are paid differently, although the reasons why are not so clear. The best way to change the culture and practices of higher education to enable female faculty members to be full-fledged members of the academy is to examine and adjust the reward structure to be fair and equitable for all. (SLD)

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Gender Differences in Faculty Productivity, Satisfaction, and Salary: What Really Separates Us?

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Certainly we live in a gendered world (Wood, 1997). Despite the fact that the number of women on college campuses, both students and faculty members, continues to increase, the gender divide remains firm and intact (Blackburn & Lawrence, 1995; Finelstein, Seal, & Schuster, 1995). For example, while the number of female faculty has risen, they remain very under-represented among the higher faculty ranks, are over-represented among the non-tenure/non-tenure-track, and are more likely to be employed by institutions of lower prestige. These gender differences are frequently explained by differences in the perceived desire to teach over conducting research and publication (Collins, 1998).

But are the differences between male and female faculty members so easily contained in teaching/research variations? In these analyses I attempt to tease out gender differences in three specific areas; faculty productivity, faculty satisfaction, and faculty salary. To insure representation, I have used two very large national datasets; the 1999 Higher Education Research Institute (HERI) Faculty Survey, (n=55,081) and the 1993 National Study of Postsecondary Faculty (n=25,780).

First, let me set the stage by presenting Table 1 that provides some basic demographic comparisons of faculty across gender. The data is from the 1999 Survey by the Higher Education Research Institute.

Table 1. Comparison of Postsecondary Faculty by Gender

Variable	% within Males	% within females
African-American	1.8%	2.8%
Full Professor	39.5%	17.7%
% PT preferring to be FT	40.0%	49.1%
Research I	8.7%	5.7%
2-year college	30.3%	40.6%
Tenured	72.1%	27.9%
Dependent child	41.4%	34.5%
Married	86.2%	69.3%
Sexually harassed	2.7%	11.4%
Interrupted career for health/family	4.3%	24.8%

Note that women are less likely to be full professors and/or tenured, more likely to teach in a 2-year college, and if teaching part-time are more likely to prefer to be teaching full-time. The actual number and proportion of part-time faculty is difficulty to ascertain, however it is generally accepted that women are more likely to be teaching part-time than full-time (Gappa, in press).

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Productivity

With the differences in place, let us turn to productivity. Tables 2 and 3 provide comparisons (proportions) in research productivity for academic years 1972-73, 1989-90, and 1998-99 for all faculty regardless of institutional type and for university-faculty in universities only.

Table 2. Gender Differences (Percentage within gender) in Research Productivity Over Time

# Pubs/ 2 yrs	Women			Men			Gender Gap		
	72-73	89-90	98-99	72-73	89-90	98-99	72-73	89-90	98-99
0	73.8	57.3	48.6	53.2	42.1	38.1	20.6	15.2	10.5
1-2	17.6	23.9	27.0	23.6	25.6	26.4	-6.0	-1.7	-0.6
3-4	5.3	11.4	15.6	12.3	17.1	18.8	-7.0	-5.7	-3.2
5+	3.3	7.4	8.8	10.9	15.2	16.6	-7.6	-7.8	-7.8

(All Institutions)

Table 3. Gender Differences (Percentage within gender) in Research Productivity Over Time (Universities Only)

# Pubs/ 2 yrs	Women			Men			Gender Gap		
	72-73	89-90	98-99	72-73	89-90	98-99	72-73	89-90	98-99
0	60.9	29.5	22.5	32.6	19.9	16.7	28.3	9.6	5.8
1-2	24.8	30.0	28.7	27.8	25.7	24.7	-3.0	4.3	4.0
3-4	8.2	22.3	28.8	20.3	26.2	27.5	-12.1	-3.9	1.3
5+	6.0	18.3	20.0	19.4	28.2	31.1	-13.4	-9.	-11.1

As evidenced by the tables, productivity differences may not be as profound as generally considered. These findings agree with Olsen, Maple, and Stage (1995) who reported very little evidence of gender differences of interest and commitment to research.

Specifically, the tables reveal marked increases in productivity across the years for both men and women, especially at research universities. At the lower productivity levels, the gender gap has narrowed significantly. For example, among faculty publishing 1-2 articles per year, the gender gap has virtually disappeared. Although the gender gap remains at the high productivity level, among faculty at universities women are more likely than men to have published between one and four articles over the past two years.

To identify the predictors of productivity among female faculty, I regressed the two-year productivity total on a number of factors identified in the literature. The strongest predictors (standardized regression weights in parenthesis) were, years of age (-.10), employed in a university (.11), salary (.15), and expressed desire to perform research (.38). Interestingly, included among the non-significant predictors were having dependent children, marriage, career interruption for health or family, and home-related stress.

Satisfaction

The next area of investigation was satisfaction. First, I performed a one-way analysis of variance to understand differences by gender among satisfaction-related items. Table 4 provides the means, standard deviations, results of the F-test, and effect sizes for the comparisons. All of the comparisons were statistically significant.

Table 4. Gender Differences across Satisfaction-Related Variables

Variable	Male mean (S. D.)	Female Mean (S. D.)	F	Effect Size
Overall satisfaction	3.754 (.5586)	3.7157 (.5461)	33.85***	.02
Academic rank	1.93 (.97)	2.53 (.97)	2788.67***	.62
Job-related stress	1.755 (.3696)	1.914 (.3602)	1336.18***	.44
Home related stress	1.519 (.4829)	1.6102 (.5375)	233.54***	.18
Stress- care of elderly parent	1.31 (.58)	1.41 (.67)	200.72***	.16
Stress- personal finances	1.71 (.69)	1.78 (.73)	57.66***	.10

Although men report higher levels of overall satisfaction, the actual difference is only .023 of a standard deviation. Cohen (1988) suggests that effect sizes in the vicinity of .20 are small while those around .50 are moderate and those near .80 as large. Using this accepted guideline, an effect size of .023 can only be considered insignificant. On the other hand, the effect size for difference in rank can be interpreted as moderately large. Also of importance is the reported gender difference in job related stress.

Thus, although overall satisfaction between men and women is virtually identical, differences in stress and rank are evident. After regressing overall satisfaction on a group of predictors for female faculty, the results indicate that the most important variables are (standardized regression weights in parenthesis); salary (.18), being committed to students (.14), feeling women are treated fairly at the institution (.31), and job stress (-.31). Variables that were not significant include rank, tenure, discipline, and marital status.

Salary

Finding only minimal differences between men and women on productivity and overall satisfaction, the last investigation was that of salary. Rather than compare average salary in rank or by institutional type, the method described by Hagedorn (1996, 1998) was used. Using only the male sample, the natural log of salary is regressed on a series of salary producing behaviors (i.e., publications, institutional type, rank, tenure, etc.). Using the regression weights *derived from the male equation*, each female faculty member's predicted salary is calculated. The last step is to subtract the female faculty member's actual salary from that predicted using the male formula. The difference between the predicted and the actual salary is the gender-based wage

differential. The National Study of Postsecondary Faculty data was used for this analysis because it is a larger and more extensive database than that from HERI.

The equations revealed that 73% of the women had a positive wage differential, indicating that the majority of women were paid less than what the male equation would have predicted. The mean differential was $8,681.

Taking the concept of a differential further, I compared the dollar value of various faculty behaviors. The dollar values were derived from separate regression equations for men and women where annual salary was the dependent variable. Table 5 provides the average (all other items held constant) value by gender.

Table 5. Dollar Values of Various Faculty Behaviors by Gender

	Male	Female	Difference
Journal articles	$110	$94	$16
Weekly hrs. teaching	-$95	-$92	-$3
Graduate students	$1,435	$3,099	-$1,664
Years since degree	$338	$228	$110
Marriage	$440	-$916	$1,356
Rank	$2,485	$1,343	$1,142
Books	$23	$75	-$52
Tenure	$1,272	$1,105	$167
Chair Department	$2,012	$2,376	-$364
Yrs in current position	-$88	$29	-$117

Note that while female faculty are rewarded more generously for teaching graduate level courses, males are rewarded more for higher rank. Interestingly, while marriage appears to provide a small return to males ($440), it is disadvantageous to salaries for females.

Conclusion

We do live in a gendered world. Although employed in the same profession, there are differences in the academic lives of male and female faculty members. However, the differences cannot be totally blamed on differences in productivity level. Although men and women faculty publish at slightly different rates, an in-depth comparison reveals much more similarity than difference. Similarly, men and women faculty report similar levels of job satisfaction. However the area that cries the loudest for differences by gender remains salary. Why the gender differences are so stubborn is not easily answered, but the fact remains that women and men are paid differently. Another finding is the large gender differences in job-related stress. Interestingly, Hagedorn (1996) found a strong relationship between job stress and gender-based wage differentials that implied that paying women less than that of their equal male counterparts causes job stress.

The policy implications are quite clear. Although assistance to be productive in research as well as steps to increase job satisfaction are always welcome by faculty members, regardless

of gender, true gender differences are lurking mainly in salary issues. Therefore, it appears the best way to change the culture and practices of higher education to enable female faculty members to be full-fledged members of the academy is to closely examine and adjust the reward structure to be fair and equitable for all.

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